



Let's discuss the role of best management practices and different approaches to management measures. These are things you can do even if you have not formally adopted a NPS program, but know that nonpoint source pollution is affecting your waterbodies



Definitions

- What are *Best Management Practices*? (BMPs)
- Either **physical or cultural controls** working individually or as a group, **appropriate to the source, location, and area climate for the pollutant to be controlled**. These are a basis for estimating the effectiveness, costs, and economic impacts of achieving the management measures

Let's begin with definitions. These are place specific so you have to understand the local conditions and area context.



Definitions

- What are *Management Measures*?
- **Economically achievable** actions to **control the addition of pollutants** to our waters, which provide the greatest degree of pollutant reduction through the application of the best available NPS controls

These are broader groups of actions that are grouped around specific categories of NPS



General Categories of BMPs

- Control pollutants at the source
 - Stormwater infiltration
- Provide treatment for special wastes
 - Manure management/containment
- Prevent stream and river bank erosion
 - Preserve/replace vegetation
- Redesign developed areas
 - Keep runoff on site

These are kinds of categories that get you thinking about how generally you may want to approach the NPS


Problem

Generally you are looking to reduce volume, reduce concentration, and stabilize waterways

Know Your Water Quality Goals



before you begin to look for BMPs, you should have a good understanding of the water quality goals you want to achieve
It will be landscape specific and related usually to water quality assessments



How to Select BMPs and MMs

Select Management Measures by category of pollution (agriculture, forestry)

Select BMPs by the source of pollution, site conditions and climate factors (rain gardens, native plants, fencing)

BMPs usually are described as the physical action taken at a place to control NPS, but can include other community based or human focused actions

Management measures are developed around the categories and subcategories of NPS

What it takes to get a BMP implemented

- Technical information
what is the problem
you are trying to solve
- Partnerships – look at what
is being used in your area
- Clear understanding of the
outcome desired





EPA and Management Measures/BMPs

<http://www.epa.gov/owow/nps/pubs.html>

National Management Measures to Control Nonpoint Source Pollution from

Agriculture

Forestry

Hydromodification

Marinas and Recreational Boating

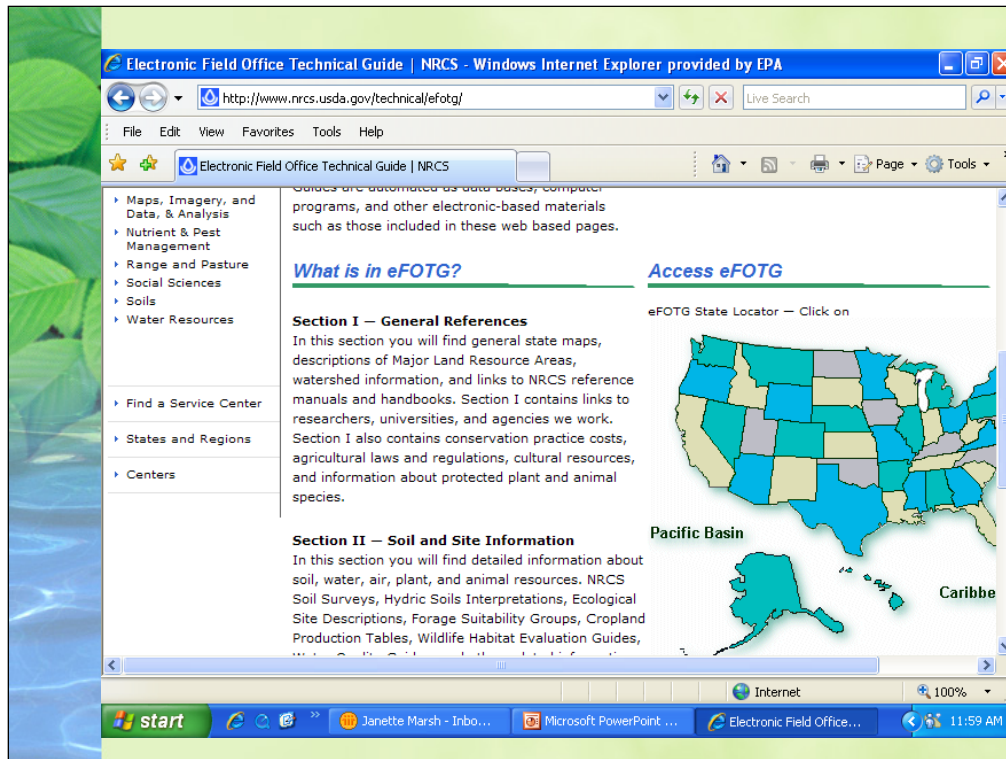
Urban Areas

AND

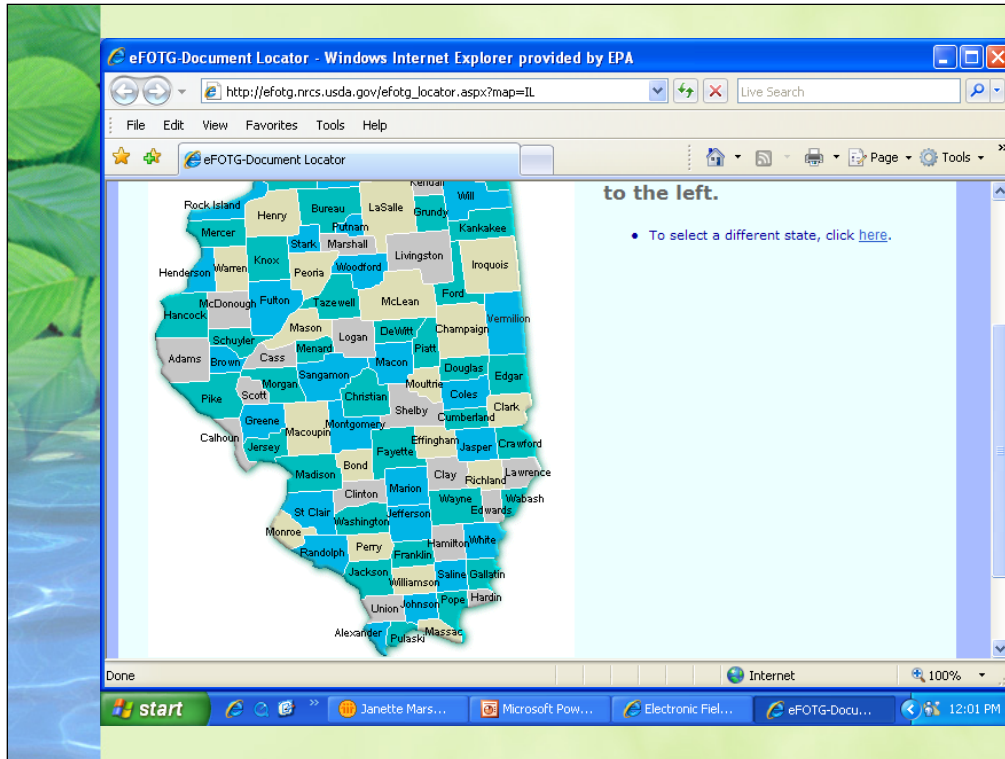
To Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution


Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters

EPA has many resources that are on the web – there now is a watershed central portal, but this site (nps) is full of good focused information and reflects EPA's general categories of concern



Probably the best reference for specific BMPs





**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
WATER AND SEDIMENT CONTROL BASIN
(No.)
CODE 638**

NRCS, Illinois March 2008

- Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service State Office or visit the electronic Field Office Technical Guide.
- **DEFINITION**
 - An earth embankment or a combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin.
- **PURPOSES**
 - A water and sediment control basin may be established to:
 - Improve farmability of sloping land
 - Reduce watercourse and gully erosion
 - Trap sediment
 - Reduce peak rate of flow at downstream locations
 - Improve downstream water quality

An actual practice entry




CONDITIONS WHERE PRACTICE APPLIES

This practice applies to sites where:

- The topography is generally irregular and precludes installing and farming terraces with reasonable effort.
- Watercourse or gully erosion is a problem.
- Sheet and rill erosion is controlled by other conservation practices.
- Runoff and sediment damage land and improvements.
- Soil and site conditions are suitable.
- Adequate outlets can be provided.

Water and sediment control basins shall not be used in place of terraces. Where a ridge and/or channel extend beyond the detention basin or level embankment, standards for Terrace (600) or Diversion (362) must be applied



Cross section.

Design embankment slopes no steeper than 2 horizontal:1 vertical, or flatter.

The sum of the upstream and down stream slopes must be 5 or greater. Slopes may be flattened to permit cropping, or vegetated.

Earth Embankment.

Minimum top widths are given in Table 1.

Constructed embankment height must be at least 5% greater than design height to allow for settlement. The maximum settled height of the embankment must be 15 feet or less measured from natural

Even more detail

http://www.deq.state.id.us/water/data_reports/surface_water/nps/compendium_report_2003_part1.pdf - Win...

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http://www.deq.state.id.us/water/data_reports/surf...

16 / 40 60.6% Find

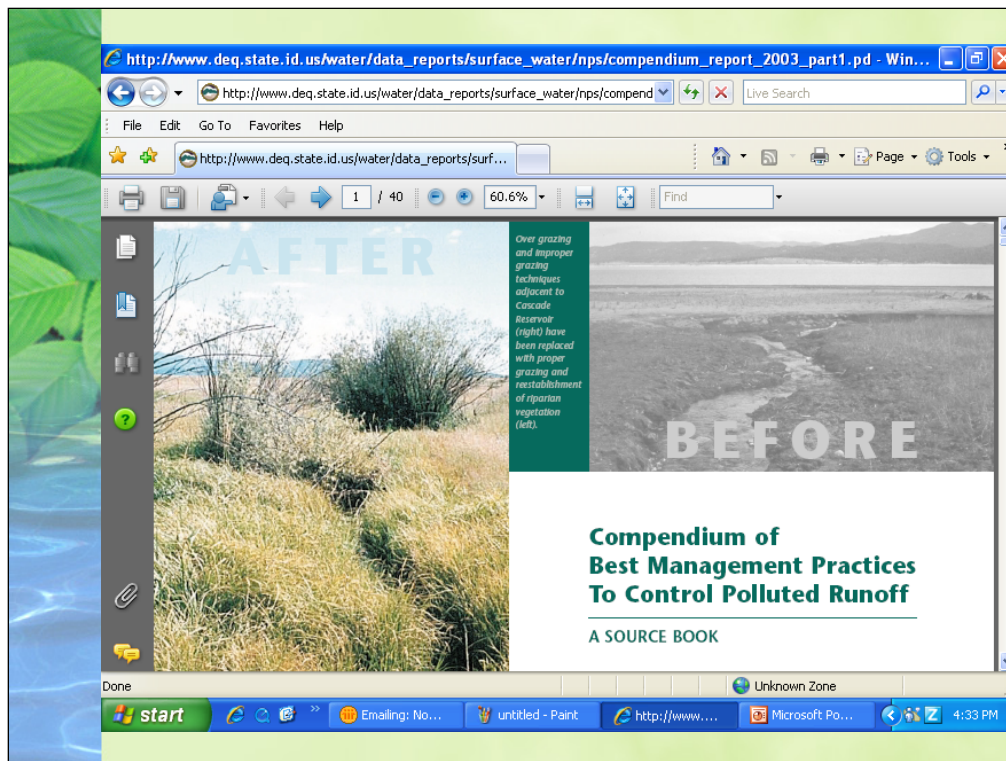
TABLE 1. Agricultural Practices

PRACTICE (NRCS Practice Code) ADDITIONAL SOURCES OF INFORMATION	TARGETED POLLUTANTS B bacteria F floatables N nutrients DO dissolved oxygen H hydrocarbons TP temperature T toxics S sediment	MECHANISM										TREATMENT CONTROL			
		SOURCE CONTROL													
		Management/ Operational	Good Housekeeping	Collection/ Conveyance	Containment	Reduction/ Elimination	Protection	Stabilization	Biological Treatment	Chemical Treatment	Filtration	Infiltration	Sedimentation		
NONIRRIGATED CROPLAND															
Alley Cropping (311)	N, S							✓							
Contour Buffer Strips (332)	N, S						✓					✓			
Conservation Cover ((327)	N, S							✓							
Conservation Crop Rotation (328)	N, S					✓									
Contour Farming (330)	N, S					✓									
Cover and Green Manure Crop (340)	N, S						✓								
Critical Area Planting (342)	N, S						✓								
Deep Tillage (324)	N, S						✓								
Field Border (386)	N, S						✓								
Field Windbreak (380)	N, S						✓								
Filter Strip (393)	N, S						✓								
Grassed Waterway (412)	N, S							✓							
Mulching (484)	N, S						✓								
PRM Erosion Control (450)	N, S						✓	✓				✓			
Pasture and Hayland Planting (512)	N, S	✓					✓	✓							
Residue Management (329)	N, S						✓								

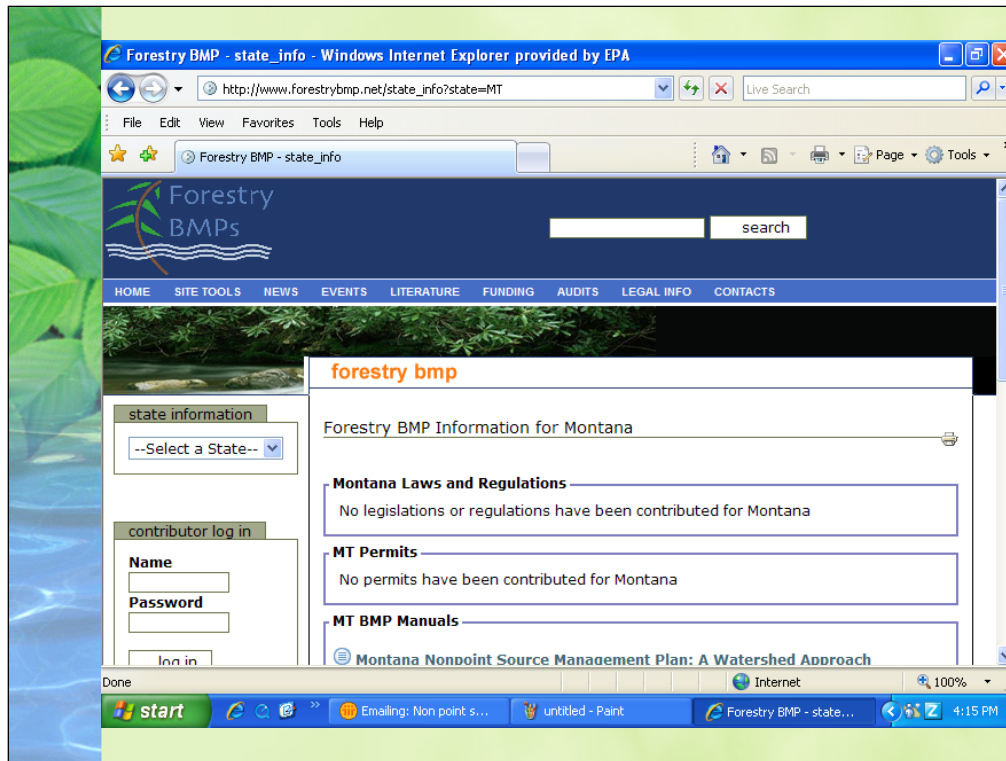
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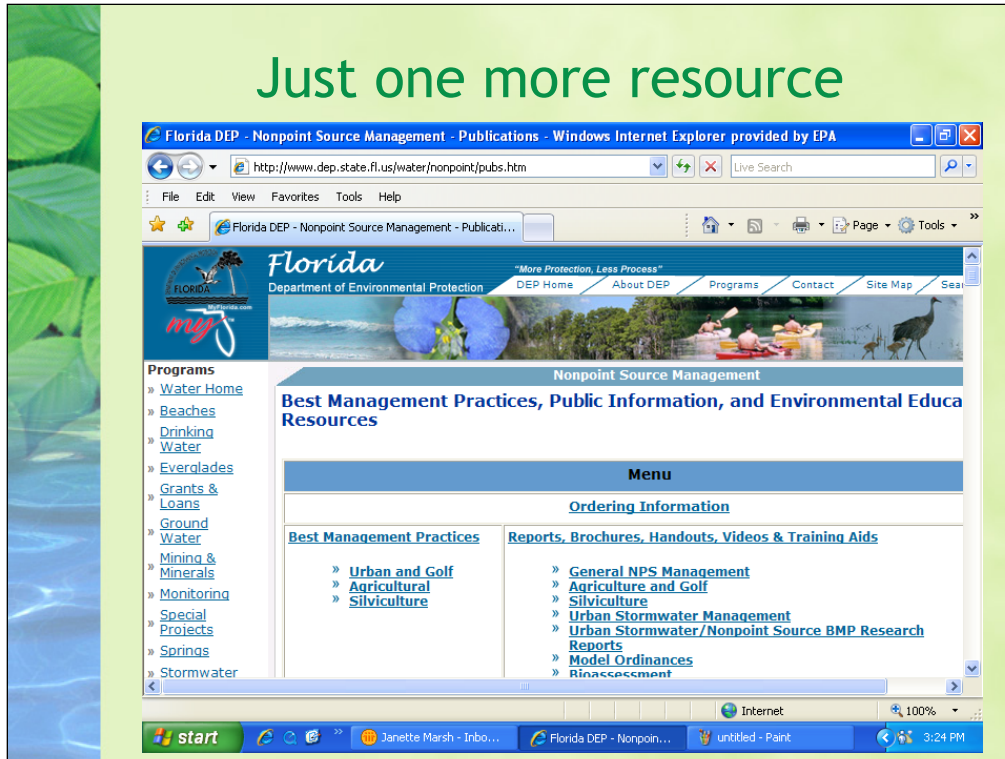
Now we can look at some State examples and resources – this is from Idaho Department of Environmental Quality




More from Idaho



An Not for Profit site with state selection tool forestrybmp.net



Florida Department of Environmental Protection



Types of BMPs

- Structural
 - Moving earth
 - Planting things
 - Construction
- Non-structural
 - Institutional changes
 - Ordinance development
 - Residue management

Structural BMPs



Grand Portage Site 1 Upstream. November 1, 2007 looking downstream. Site 1 Upstream. June 28, 2009 looking downstream. Grand Portage is at the very tip of the arrowhead in MN, a 56,000 acre reservation almost 100 miles of perennial and intermittent streams, 816 acres of lakes and more than 7,000 acres of wetlands

Gravel Pit



More Grand Portage August 2007 and June 2009
2007 to 2009

More BMPs



Residue management and field borders and vegetative filterstrips

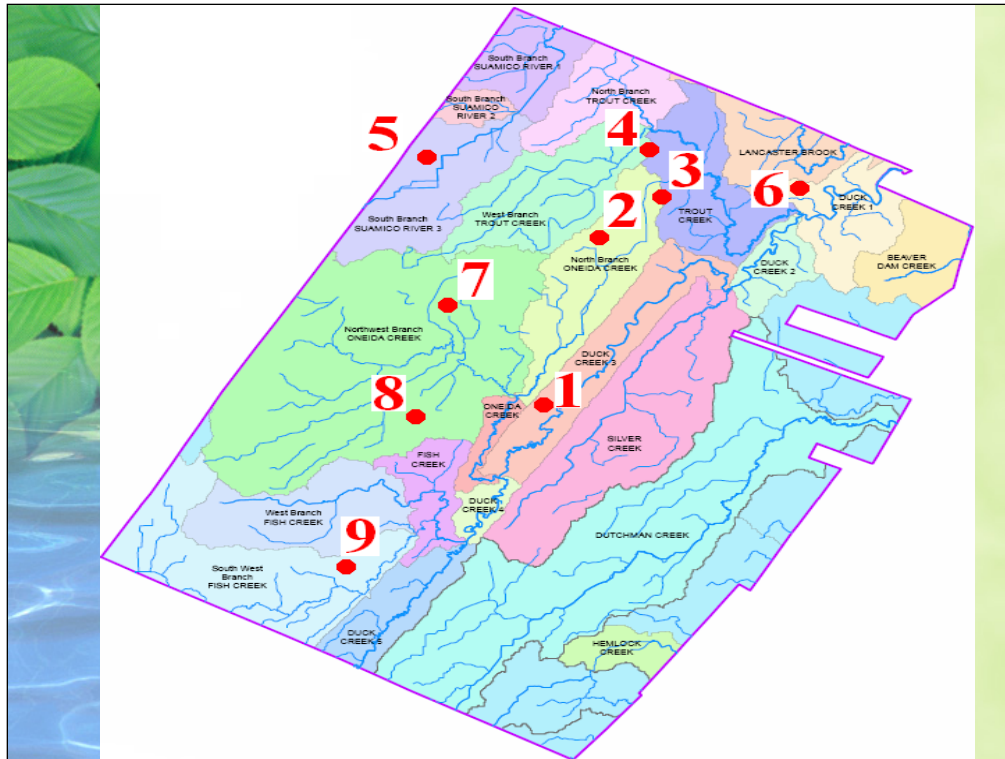
Structural BMPs



Sediment retention pond and cattle crossing – cattle will still be interested in the water – alternative watering sites are needed



Before and After and urban example




Oneida buffer strips – note many in headwaters areas – generally 35 foot wide used timothy red clover and brome mix

The Oneida have a 65,000 acre reservation just outside of Green Bay Wisconsin, making them part of an MS 4 area for stormwater permits. They have 233 miles of rivers, creeks and streams, 112 acres of lakes and ponds and 1,453 acres of wetlands

Both Oneida and Grand Portage drain to the Great Lakes.



A way to deal with rain on the parking lot



Non-Structural

Chapter 48
Water Resources Ordinance
Kanekalunyuhs Olihwake
the matters of the different kinds of waters

48.1-1 Purpose and Policy	48.4-1 Powers and Duties
48.2-1 Authority	48.5-1 Review
48.3-1 Definitions	48.6-1 Reporting

48.3-7. "Non-point Source" means a land management activity which contributes to runoff, seepage or percolation which adversely affects or threatens the quality of waters of the Reservation and which is not a point source as defined in Section 3-10.

48.6-5. Oneida Environmental Fund established. The Oneida Environmental Fund is hereby established. Any and all monies collected pursuant to this Ordinance shall be deposited in the Oneida Environmental Fund. This fund shall be used by the Tribe to defray the expense of administering this Ordinance, and to fund pilot projects and provide pollution control and prevention grants to persons at the discretion of the Department, and subject to the availability of funds.

Adopted - BC-5-08-96-B

Non Structural/ institutional Oneida

Oneida have worked with many partners since the 1980's on water resource issues.



Conservation Plan

Partnership NRCS and Bay Mills Indian Community

This plan is a dynamic and nonbinding document produced to help preserve and protect the natural resources on the Bay Mills Indian Community (BMIC) tribal lands for present and future generations. BMIC is located in Michigan's Upper Peninsula,....

The main objectives for this plan include the protection of surface and ground water quality, a reduction in stream bank and soil erosion, and the enhancement of existing wildlife habitat....

Once installed, all practices should be periodically inspected and maintained, as needed, according to the operation and maintenance plan, provided and approved by NRCS. All operation and maintenance will be the responsibility of the tribe. It is recommended that the plan be reviewed and updated as practices are implemented and the management objectives change. Please contact NRCS for help when updating your plan.

Bay Mills in 2008 worked with NRCS on a conservation plan, located in the eastern part of Michigan's Upper Peninsula and have a reservation of 3,225 acres, 72.5 acres of lakes 5 miles of streams and 1,085 acres of wetlands

They also structures an accord on water resources issues with the state of Michigan in 2004



13th Annual
LAKEFEST
Downtown Lac du Flambeau *June 20, 2009*
Saturday, 10a.m. to 3p.m.

"Water is life within the sacred circle."



Educational Displays
Free Hot Dogs, Popcorn & Soda
Games & Activities
Live Entertainment
Canoe Races with prizes.

Raffles

- For a \$1,000 Gander Mountain Gift card.
- Two tickets and two-night hotel stay for Green Bay Packers Season Opener vs. Chicago Bears.
- Patio Set with Grill.
- Plus hourly raffles.

For more information please contact:
The Lac du Flambeau Chamber at 715-588-3346
LDF Tribal Natural Resources Department at 715-588-4213
Bryan Hoover at 715-588-7214 or E-mail: lakesfest@yahoo.com



Thank you

QUESTIONS?

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